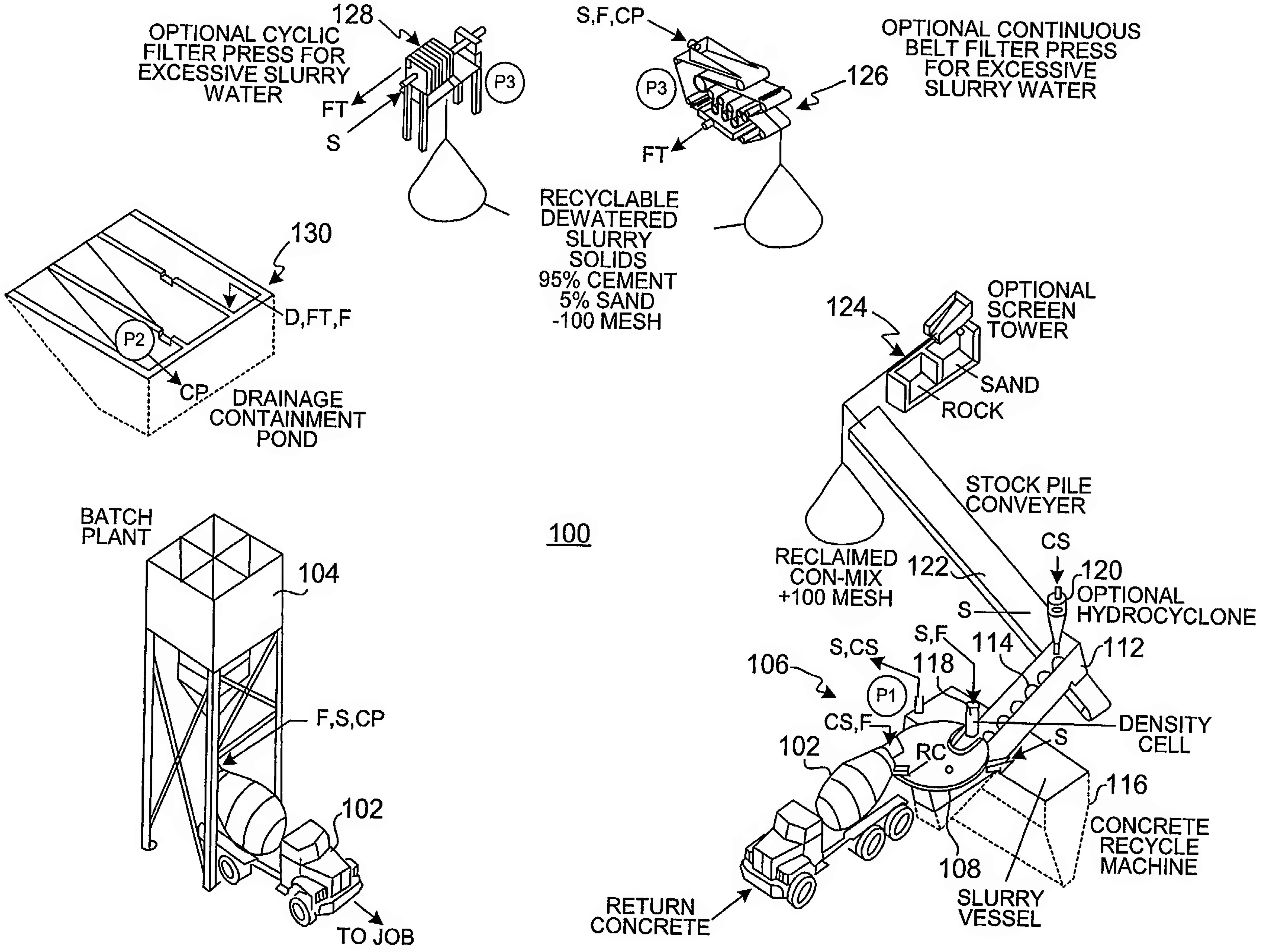
128
OPTIONAL CYCLIC FILTER PRESS FOR EXCESSIVE SLURRY WATER
FT
S
P3
S,F,CP
P3
FT
126
OPTIONAL CONTINUOUS BELT FILTER PRESS FOR EXCESSIVE SLURRY WATER
RECYCLABLE DEWATERED SLURRY SOLIDS 95% CEMENT 5% SAND -100 MESH
130
D,FT,F
P2
CP
DRAINAGE CONTAINMENT POND
124
OPTIONAL SCREEN TOWER
SAND
ROCK
STOCK PILE CONVEYER
RECLAIMED CON-MIX +100 MESH
122
CS
120
OPTIONAL HYDROCYCLONE
S
BATCH PLANT
104
100
S,CS
S,F
114
112
106
118
P1
CS,F
DENSITY CELL
S
RC
102
116
CONCRETE RECYCLE MACHINE
108
SLURRY VESSEL
RETURN CONCRETE
F,S,CP
102
TO JOB

FIG. 1

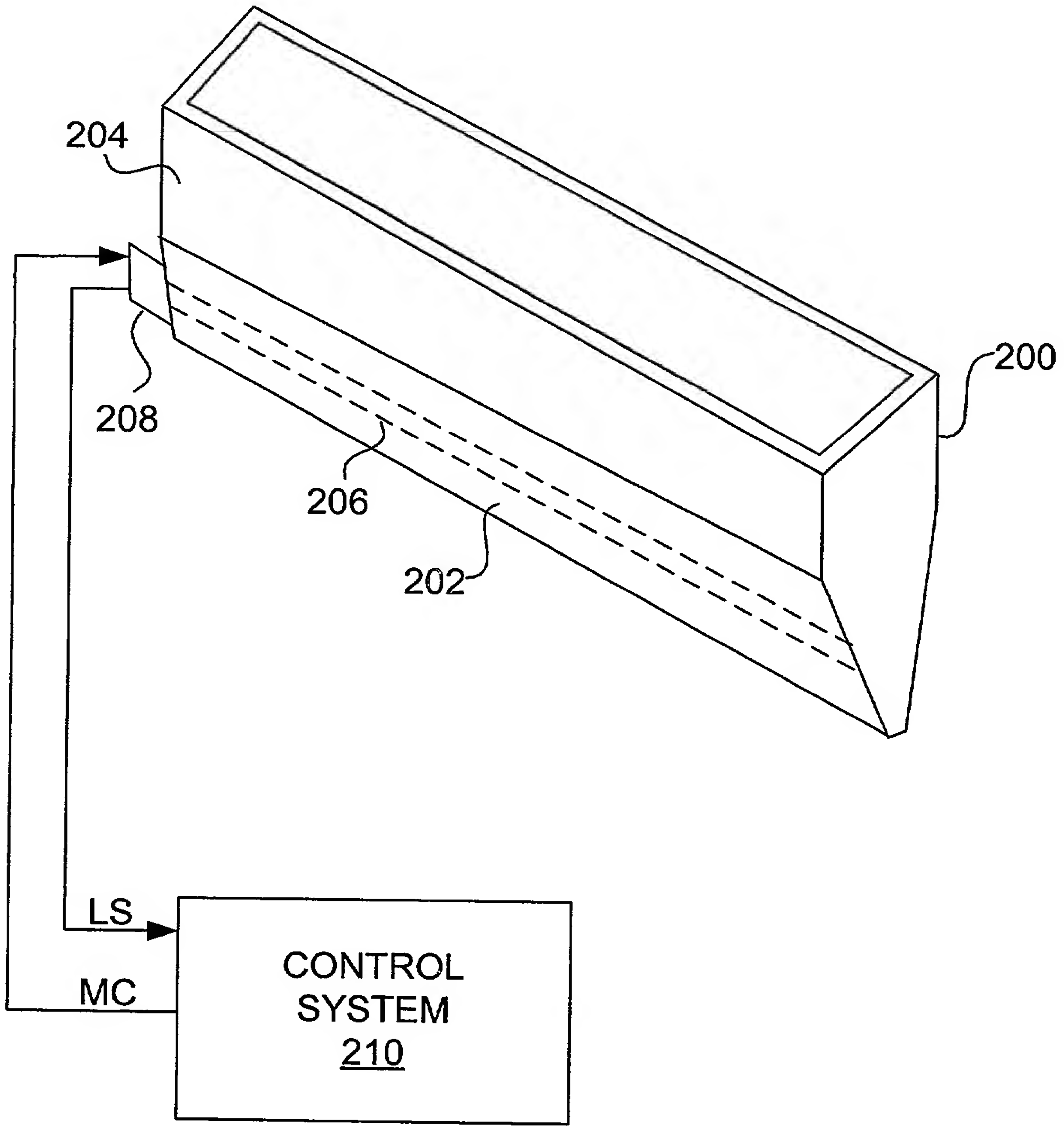

FIG. 2

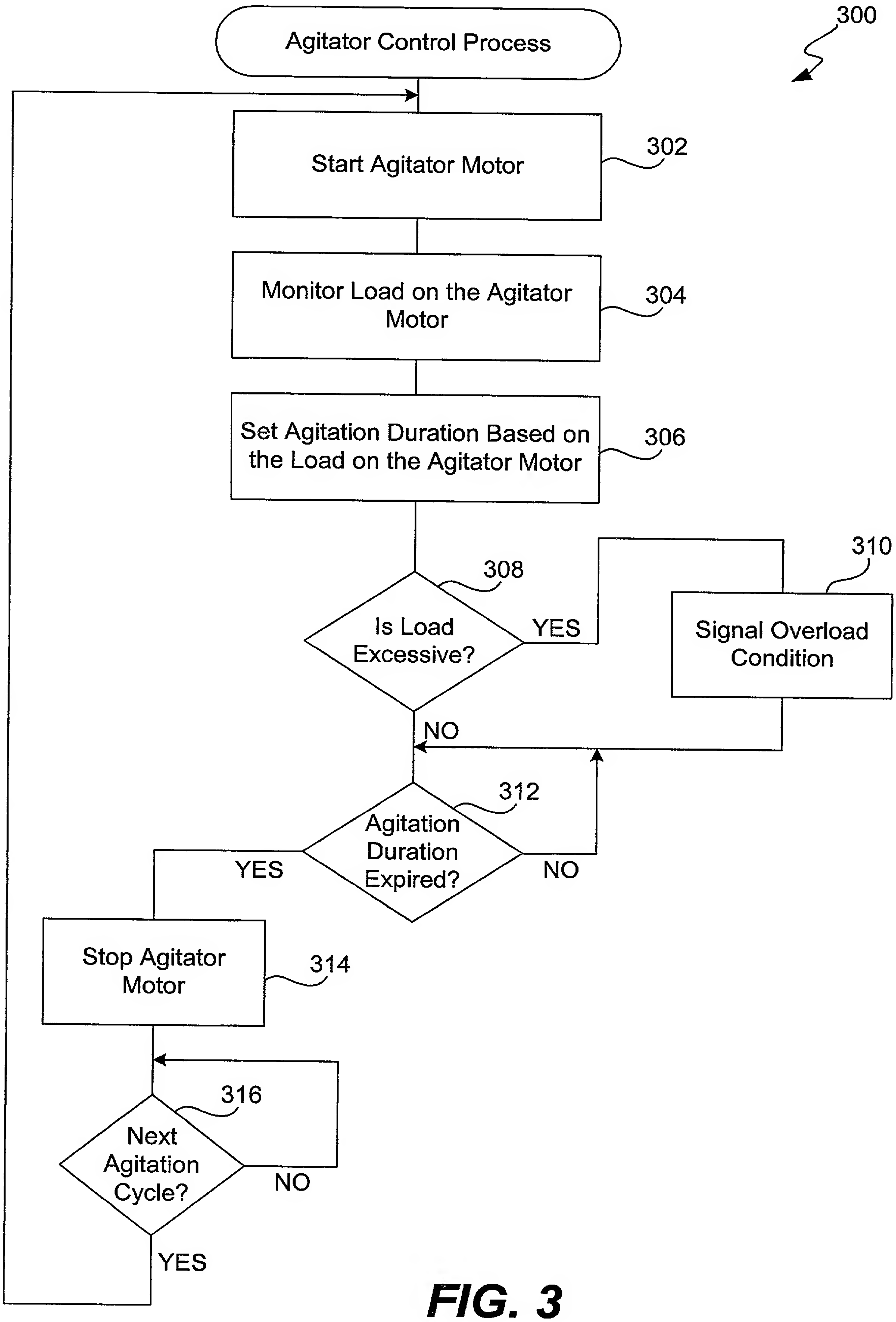
300
Agitator Control Process
Start Agitator Motor
302
Monitor Load on the Agitator Motor
304
Set Agitation Duration Based on the Load on the Agitator Motor
306
308
Is Load Excessive?
YES
310
Signal Overload Condition
NO
312
Agitation Duration Expired?
YES
NO
Stop Agitator Motor
314
316
Next Agitation Cycle?
NO
YES

FIG. 3

(ENVIRO-MATIC) MODULES	FUNCTIONS	BENEFITS
Aggregates Reclaiming Module	Separates aggregates from slurry, washes, dewaters aggregates. Choice of models and capacities.	High quality construction by Stephens Mfg. produces long life, trouble-free performance.
Shaker Screen Module (optional)	Separates coarse and fine aggregates.	Reduces material handling costs.
Hydrocyclone Module (optional)	Strips sand fines (100+) from slurry on demand. Centrifugal flow device has no moving parts.	Maximizes recovery of fines. Reduces slurry density for better recycling or dewatering.
Slurry Vessel Module	Stores slurry for later recycling, dewatering or disposal.	Underground location saves space, permits dilution to control density. Agitators run on demand, use minimal power.
Density Cell Module	Measures specific gravity of slurry.	Ensures total quality control of concrete made with recycled slurry.

FIG. 4

Solids Correction Programming Instruction Module	Powerful, proprietary software interfaces with batch plant control system, maintains yield, water/cement ratio and mix proportions regardless of slurry density	Protects quality of your product. Permits total recycling of slurry with no compromise in mix design. Works with all major computerized plant controls. Only the Enviro-Matic System has this vital quality control capability.
Cyclic Plate Filter Press Module (optional)	Simple, economical method of dewatering slurry when it cannot be recycled into new concrete. Range of sizes and capacities. Minimizes or eliminates need for extensive settling ponds.	Completely eliminates any slurry problem. Supports extreme demands up to 150 cu. yd. per day of returned concrete. Solids are compressed into stable, solid cake byproduct easy to load, haul and dump as fill material. Filtrate water is clarified and reusable.
Continuous Belt Filter Press Module (optional)		
Drainage Containment Interface Module (optional)	All plant site storm drainage, fugitive water, filtrate, and make-up water can be prioritized by Enviro-Matic control.	Aids in compliance with regulations even with maximum production, adverse job conditions, high volumes of returned concrete and severe weather.

FIG. 5

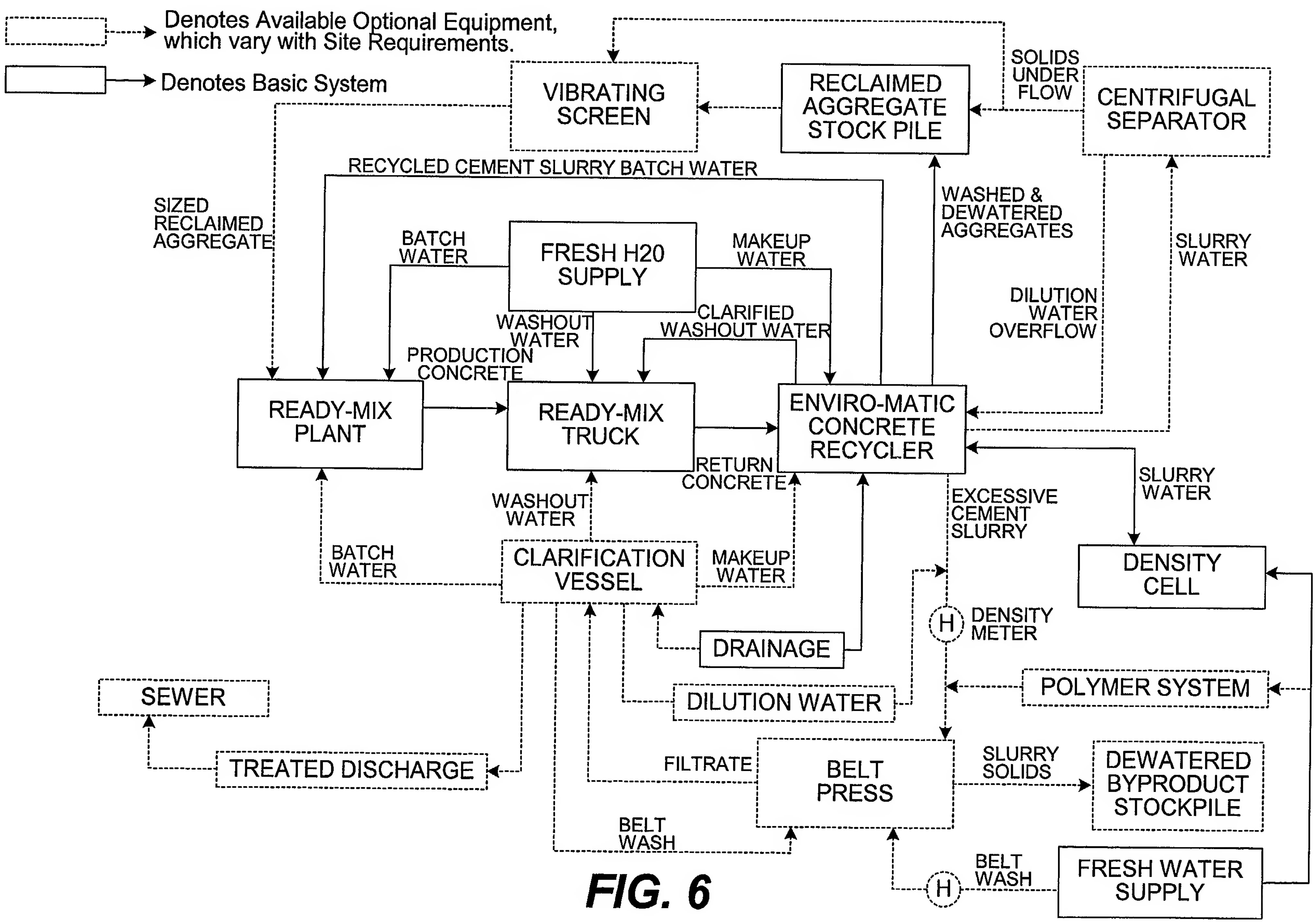
Denotes Available Optional Equipment, which vary with Site Requirements.
Denotes Basic System
VIBRATING SCREEN
RECLAIMED AGGREGATE STOCK PILE
SOLIDS UNDER FLOW
CENTRIFUGAL SEPARATOR
RECYCLED CEMENT SLURRY BATCH WATER
SIZED RECLAIMED AGGREGATE
BATCH WATER
FRESH H20 SUPPLY
MAKEUP WATER
WASHED & DEWATERED AGGREGATES
SLURRY WATER
DILUTION WATER OVERFLOW
WASHOUT WATER
CLARIFIED WASHOUT WATER
PRODUCTION CONCRETE
READY-MIX PLANT
READY-MIX TRUCK
ENVIRO-MATIC CONCRETE RECYCLER
RETURN CONCRETE
SLURRY WATER
WASHOUT WATER
EXCESSIVE CEMENT SLURRY
BATCH WATER
CLARIFICATION VESSEL
MAKEUP WATER
DENSITY CELL
H
DENSITY METER
DRAINAGE
SEWER
DILUTION WATER
POLYMER SYSTEM
TREATED DISCHARGE
FILTRATE
BELT PRESS
SLURRY SOLIDS
DEWATERED BYPRODUCT STOCKPILE
BELT WASH
BELT WASH
H
FRESH WATER SUPPLY

FIG. 6

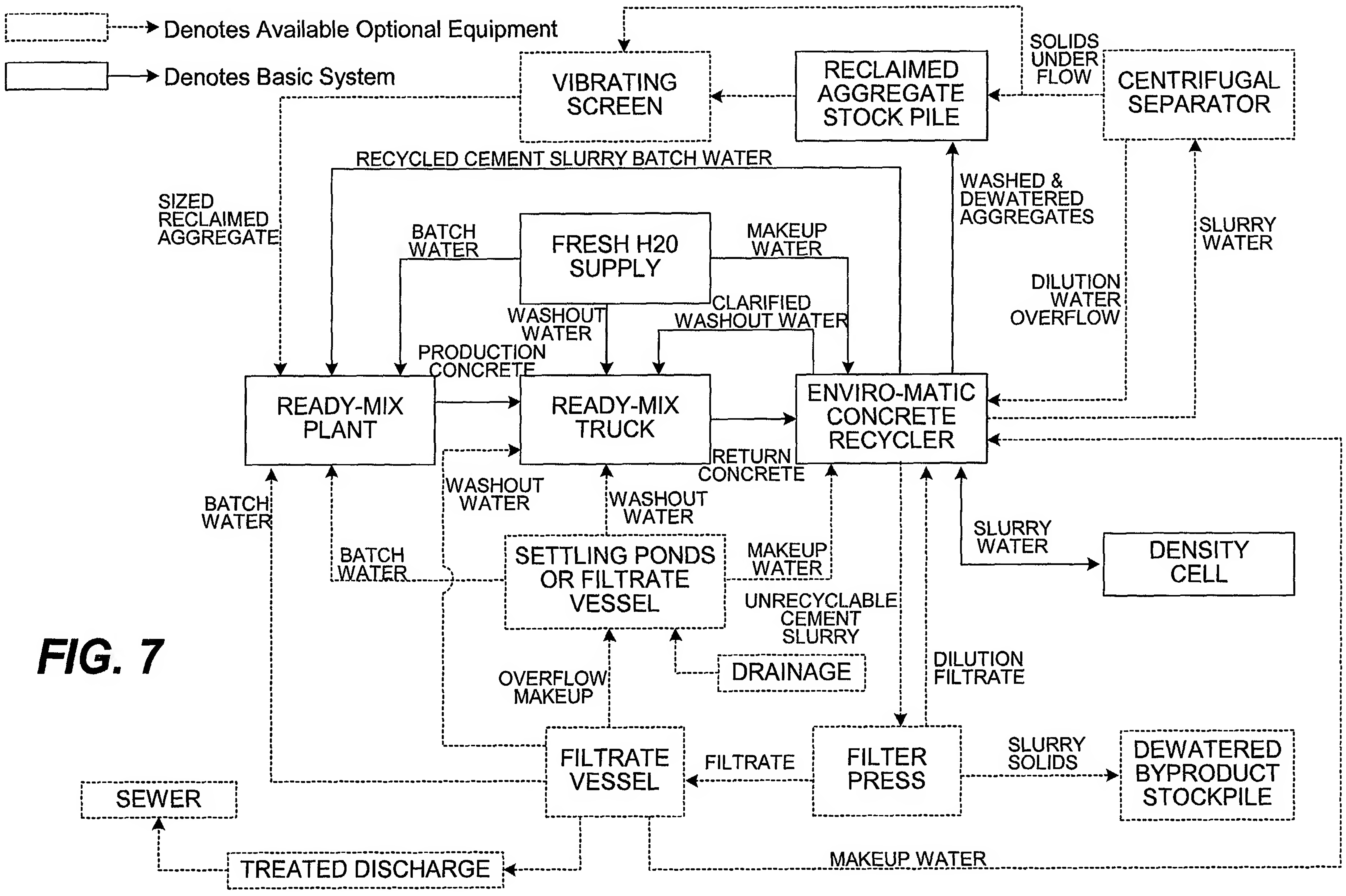
Denotes Available Optional Equipment
Denotes Basic System
VIBRATING SCREEN
RECLAIMED AGGREGATE STOCK PILE
SOLIDS UNDER FLOW
CENTRIFUGAL SEPARATOR
RECYCLED CEMENT SLURRY BATCH WATER
SIZED RECLAIMED AGGREGATE
BATCH WATER
FRESH H20 SUPPLY
MAKEUP WATER
WASHED & DEWATERED AGGREGATES
SLURRY WATER
CLARIFIED WASHOUT WATER
WASHOUT WATER
PRODUCTION CONCRETE
DILUTION WATER OVERFLOW
READY-MIX PLANT
READY-MIX TRUCK
ENVIRO-MATIC CONCRETE RECYCLER
RETURN CONCRETE
WASHOUT WATER
WASHOUT WATER
BATCH WATER
BATCH WATER
SLURRY WATER
DENSITY CELL
SETTLING PONDS OR FILTRATE VESSEL
MAKEUP WATER
UNRECYCLABLE CEMENT SLURRY
DRAINAGE
DILUTION FILTRATE
OVERFLOW MAKEUP
FILTRATE VESSEL
FILTRATE
FILTER PRESS
SLURRY SOLIDS
DEWATERED BYPRODUCT STOCKPILE
SEWER
TREATED DISCHARGE
MAKEUP WATER

FIG. 7

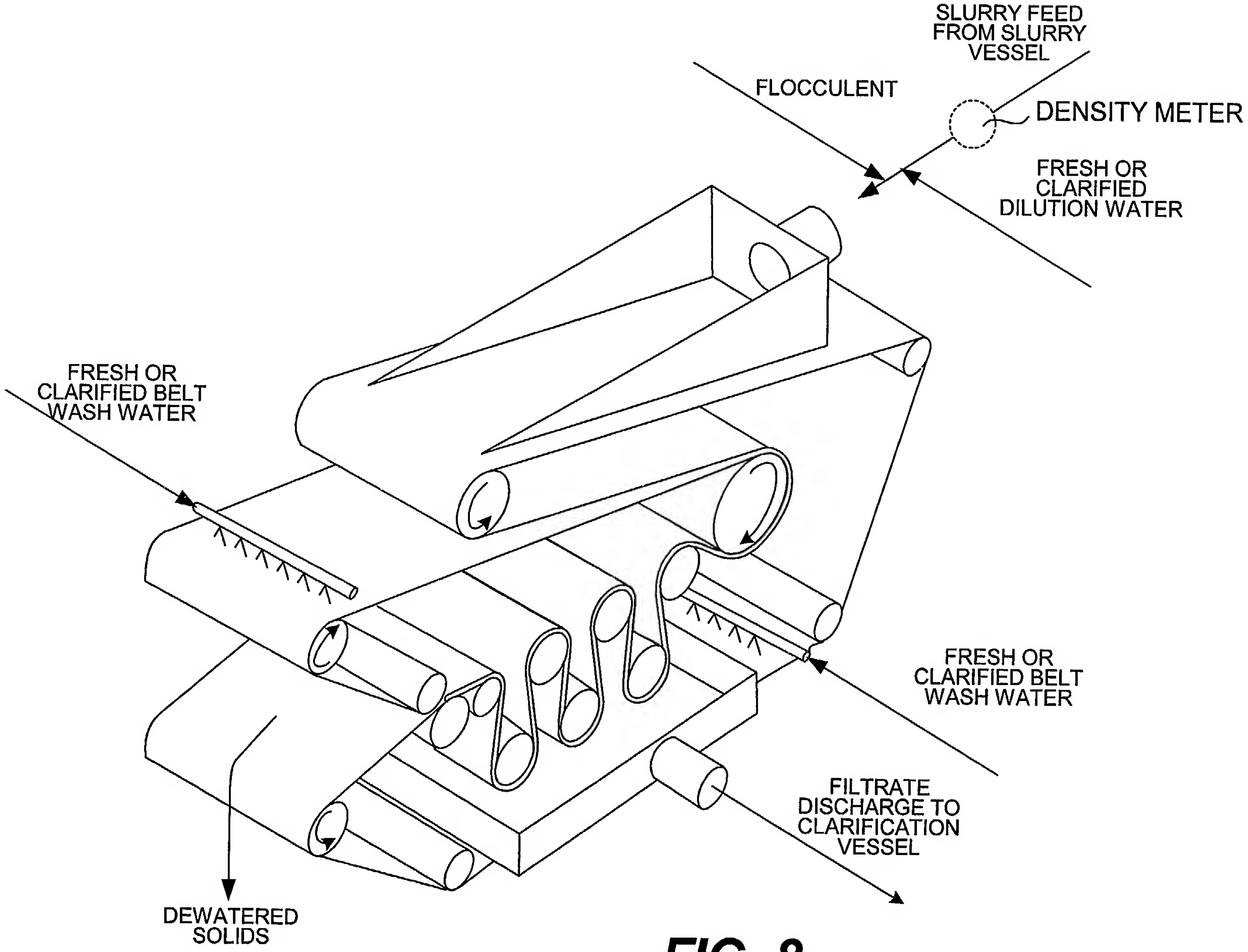
SLURRY FEED
FROM SLURRY
VESSEL
DENSITY METER
FLOCCULENT
FRESH OR
CLARIFIED
DILUTION WATER
FRESH OR
CLARIFIED BELT
WASH WATER
FRESH OR
CLARIFIED BELT
WASH WATER
FILTRATE
DISCHARGE TO
CLARIFICATION
VESSEL
DEWATERED
SOLIDS

FIG. 8

FILTER PRESS DILUTION

VESSEL	GAL. CAP.	S.G.		PRESS SIZE	PUMP			COMP			CYCLE TIME-MIN			NUMBER CYCLES	FOB COST		
		START	STOP		GPM	HP	PSI	CFM	HP	PSI	1ST	LAST	TOT.		PRESS	PUMP	COMP
EM20	5,000	1.25	1.03	•	•	•	•	•	•	•	•	•	•	•	•	•	•
EM40	10,000	1.25	1.03	•	•	•	•	•	•	•	•	•	•	•	•	•	•

FIG. 9A

FILTER PRESS FILTRATE

VESSEL	GALLON CAP.		S.G.	PRESS SIZE	PUMP			COMP			CYCLE TIME-MIN	NO. CYCLES	TOTAL TIME MIN	FOB COST		
	START	STOP			GPM	HP	PSI	CFM	HP	PSI				PRESS	PUMP	COMP
EM20	5,000	500	1.25	•	•	•	•	•	•	•	•	•	•	•	•	•
EM40	10,000	1,000	1.25	•	•	•	•	•	•	•	•	•	•	•	•	•

FIG. 9B

BELT PRESS FILTRATE

WIDTH METERS	CAP.	SLURRY FEED		SLUDGE FEED	AVG. FEED TO E-M	INTER-MITTENT FEED TO E-M	FEED TO E-M	3 HR FEED TO E-M CY		90% EMPTY VESSEL-MIN		FOB COST BELT PRESS	COST/DAY POLYMER
	LB/HR	SG	GPM	LB/CY	CY/MIN	CY/MIN	CY/HR	EM20	EM40	EM20	EM40		
1.2	12,000	1.22	70	620	0.32	1	19.2	77	97	64	135	•	•
1.7	18,000	1.22	105	620	0.48	1	28.8	106	126	43	90	•	•
2.2	24,000	1.22	140	620	0.64	1	38.4	135	155	32	68	•	•

FIG. 10

CLOSED CIRCUIT MATERIAL UTILIZATION CHART FOR RETURNED CONCRETE

WATER SOURCE	CODE	CONCRETE RECYCLE MACHINE	PLANT BATCH WATER	BELT PRESS	FILTER PRESS	POND	HYDRO CYCLONE	DENSITY CELL
FRESH	F	X	X	X				X
CLARIFIED SLURRY	CS	X						
CLARIFIED POND	CP	X	X					
SLURRY	S		X	X	X		X	X
DRAINAGE	D					X		
FILTRATE	FT					X		
RETURN CONCRETE	RC	X						

FIG. 11